Sample Mean Of Horspower & Miles/Gallon on Mtcars Dataset

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**AIM:**mtcars data frame involves data on a 32 automobiles. Randomly select 30% of these automobiles and hence  
 i) calculate its average Miles/gallon and horsepower.   
ii) Do this three times and note that they are unlikely to be the same automobiles.  
iii) Display the identical result 3 times.

**CALCULATIONS:**

data<-sample(1:nrow(mtcars),10)  
data

## [1] 11 15 23 24 27 28 20 22 26 12

newcars<-mtcars[data,]  
newcars

## mpg cyl disp hp drat wt qsec vs am gear carb  
## Merc 280C 17.8 6 167.6 123 3.92 3.440 18.90 1 0 4 4  
## Cadillac Fleetwood 10.4 8 472.0 205 2.93 5.250 17.98 0 0 3 4  
## AMC Javelin 15.2 8 304.0 150 3.15 3.435 17.30 0 0 3 2  
## Camaro Z28 13.3 8 350.0 245 3.73 3.840 15.41 0 0 3 4  
## Porsche 914-2 26.0 4 120.3 91 4.43 2.140 16.70 0 1 5 2  
## Lotus Europa 30.4 4 95.1 113 3.77 1.513 16.90 1 1 5 2  
## Toyota Corolla 33.9 4 71.1 65 4.22 1.835 19.90 1 1 4 1  
## Dodge Challenger 15.5 8 318.0 150 2.76 3.520 16.87 0 0 3 2  
## Fiat X1-9 27.3 4 79.0 66 4.08 1.935 18.90 1 1 4 1  
## Merc 450SE 16.4 8 275.8 180 3.07 4.070 17.40 0 0 3 3

mean(mtcars$hp)

## [1] 146.6875

mean(mtcars$mpg)

## [1] 20.09062

index<-sample(1:nrow(mtcars),10)  
index

## [1] 15 10 6 23 13 7 11 4 5 1

oldcars<-mtcars[index,]  
oldcars

## mpg cyl disp hp drat wt qsec vs am gear carb  
## Cadillac Fleetwood 10.4 8 472.0 205 2.93 5.250 17.98 0 0 3 4  
## Merc 280 19.2 6 167.6 123 3.92 3.440 18.30 1 0 4 4  
## Valiant 18.1 6 225.0 105 2.76 3.460 20.22 1 0 3 1  
## AMC Javelin 15.2 8 304.0 150 3.15 3.435 17.30 0 0 3 2  
## Merc 450SL 17.3 8 275.8 180 3.07 3.730 17.60 0 0 3 3  
## Duster 360 14.3 8 360.0 245 3.21 3.570 15.84 0 0 3 4  
## Merc 280C 17.8 6 167.6 123 3.92 3.440 18.90 1 0 4 4  
## Hornet 4 Drive 21.4 6 258.0 110 3.08 3.215 19.44 1 0 3 1  
## Hornet Sportabout 18.7 8 360.0 175 3.15 3.440 17.02 0 0 3 2  
## Mazda RX4 21.0 6 160.0 110 3.90 2.620 16.46 0 1 4 4

mean(mtcars$hp)

## [1] 146.6875

mean(mtcars$mpg)

## [1] 20.09062

flag<-sample(1:nrow(mtcars),10)  
flag

## [1] 13 29 12 18 3 6 2 32 19 24

medcars<-mtcars[flag,]  
medcars

## mpg cyl disp hp drat wt qsec vs am gear carb  
## Merc 450SL 17.3 8 275.8 180 3.07 3.730 17.60 0 0 3 3  
## Ford Pantera L 15.8 8 351.0 264 4.22 3.170 14.50 0 1 5 4  
## Merc 450SE 16.4 8 275.8 180 3.07 4.070 17.40 0 0 3 3  
## Fiat 128 32.4 4 78.7 66 4.08 2.200 19.47 1 1 4 1  
## Datsun 710 22.8 4 108.0 93 3.85 2.320 18.61 1 1 4 1  
## Valiant 18.1 6 225.0 105 2.76 3.460 20.22 1 0 3 1  
## Mazda RX4 Wag 21.0 6 160.0 110 3.90 2.875 17.02 0 1 4 4  
## Volvo 142E 21.4 4 121.0 109 4.11 2.780 18.60 1 1 4 2  
## Honda Civic 30.4 4 75.7 52 4.93 1.615 18.52 1 1 4 2  
## Camaro Z28 13.3 8 350.0 245 3.73 3.840 15.41 0 0 3 4

mean(mtcars$hp)

## [1] 146.6875

mean(mtcars$mpg)

## [1] 20.09062

**CONLUSIONS:**The Average Miles/gallon on the mtcars dataset is: **20.09062**  
The Average horspower on the mtcars dataset is: **146.6875**   
The Automobiles are different all the 3 times we excecute the code although the mean remains identical all 3 times.